

Green College Station – A White Paper on Resource Conservation and Sustainability

Sustainability and resource conservation has become a constant on the local government landscape. Communities across the nation, indeed the world, have undertaken sustainability initiatives. The International City – County Management Association launched a major policy discussion earlier this year designed to help local communities to successfully conceptualize and launch sustainability programs in response to the growing desire by local governments to address this growing global concern.

This White Paper – Green College Station – A White Paper on Resource Conservation and Sustainability has a threefold purpose:

- 1) To present a policy rationale for resource conservation and sustainability;
- 2) To identify existing resource conservation and sustainability programs offered by the City of College Station; and
- 3) To recommend specific policy initiative(s) to enhance existing programs.

Rationale for Resource Conservation and Sustainability Programs

Too often, cities can be guilty of following fads. The local government landscape is littered with fads – *reinventing government, policy governance, and zero based budgeting*, just to name a few. Sustainability and conservation of resources cannot become a fad. Future generations are at stake in our wise use of current resources. Our ability to meet the needs of the present without compromising the ability of future generations to meet our own needs. Our stewardship of current resources is a legacy we leave to future generations. No doubt, many will view sustainability efforts as some fringe concept left to the odd balls in the community. The harsh reality is that we have finite resources which have been bequeath to us by earlier generations for which we have been made the *stewards*.

Sustainability and conservation of resources has a direct connection to the quality of life in the community. Communities which are strategic in their use of resources have been able to improve and enhance the quality of life by making wise choices about providing for open and green space, reducing the carbon footprint, reduced water consumption, and reduced energy consumption. ICMA suggests four interdependent elements to the quality of life aspects of sustainability: (a) balancing environmental stewardship; (b) economic development; (c) social equity; and (d) financial and organizational viability. These four factors assist cities in their ability to address the quality of life quotient in real and tangible ways.

Finally, sustainability initiatives when properly formed should result in real and tangible fiscal

responsibility. Viewing sustainability holistically, cities can account for real savings in terms of deferring capital and operating costs. There should not be a one sided view of the initial cost to fund an initiative but the savings both in terms of hard costs and conserving resources for future generations to enjoy and benefit.

College Station citizens have been clear in their desire to promote sustainability and resource conservation. Throughout the Comprehensive Plan Update, citizens have encouraged the protection of resources. The CPAC spoke specifically to the issue by adding language in the Plan goals to address sustainability and resource conservation.

There is a clear case to be made for sustainability and conservation of resources in College Station. Our emphasis on the quality of life for the community demands that we aggressively work towards creating a culture in the community which embraces sustainability as its mantra. We can ill afford to sacrifice precious resources while expecting to be a community with a high quality of life.

Benefits of Comprehensive Green Program

There are a number of benefits to College Station to develop and implement a comprehensive Green program.

- **SAVE TAXPAYER DOLLARS**
A comprehensive strategy to promote green technology reduces the capital investments in building new and additional infrastructure. Reducing water consumption could result in our not needing to invest in new water wells and increased treatment costs. Energy efficient facilities reduce the amount of energy consumed and in turn the dollar outlay for energy costs.
- **BUILD LOCAL ECONOMY AND CREATE JOBS**
Decreased energy costs and the provision of new energy services and technologies give local government and private firms a competitive edge. Demand for energy efficient products, services, and for new or alternative energy technologies expands local business and creates local jobs.
- **QUALITY OF LIFE**
Communities with efficient transportation, abundant biking and recreation areas, reliable long-term water and energy supplies, and similar programs report higher quality of life for their residents.
- **LEGACY OF LEADERSHIP**
Now is the right time to implement a comprehensive sustainability policy for College Station. If we do not change what we are doing now, we face a future with traffic problems, inadequate water supplies, a deficient tax base, and lower quality of life.

Current Program and Activities

College Station has a rich history of resource conservation and sustainability programs. As background data in preparing this White Paper, a survey of current City programs was conducted. The number of programs was indeed impressive. The City is already investing meaningful dollars in resource conservation and sustainability programs throughout the organization and community.

The survey of existing programs and activities revealed one key finding – *while College Station has a number of important programs in place, we lack focus and purpose for those programs.* There is no unifying strategy or expected outcome to be achieved by our efforts. This lack of focus and purpose limits our ability to move towards more meaningful efforts and with clear benchmarks for success. Our review of best practice cities indicates we have a number of opportunities to systematically enhance our existing programs and activities. Additional investment without clear policy objectives will result in wasted resources and run counter to our overall efforts to conserve resources and provide for a sustainable community.

Our current programs and activities fall into seven main categories (See **Appendix 1** for a list of programs and activities).

- * Energy conservation
- * Hazardous waste management
- * Natural areas and open space preservation
- * Recycling
- * Water resource conservation
- * Building codes
- * Citywide public education

Best Practices

During the course of developing this White Paper, a number of communities were examined for Best Practices in sustainability and resource conservation. Best Practices were identified on two levels:

- 1) How are other communities addressing sustainability and resource conservation initiatives?
- 2) What are the gaps between what other communities are doing and our current College Station programs?

Our Best Practices analysis revealed a number of key findings. These findings appear to fall into seven broad categories. Indeed, they appear to establish several guiding principles worthy of our consideration.

- * Best Practice cities have taken a comprehensive - integrated approach to developing their programs. While often times there may be various elements of sustainability, there is an overriding purpose and focus.
- * All the Best Practice cities have adopted aggressive public education programs focused around their sustainability initiatives.
- * There are clearly stated goals and supporting strategies to measure the success of sustainability efforts. The goal setting efforts clearly define responsibilities and expectations.
- * Small things add up. It was clear in looking at best practices that cities did small things to advance their sustainability efforts. This approach obviously lends itself to achieving results while dealing with the practicality of cost.
- * Every Best Practice city established clear policies as a predicate to its actions. This point speaks clearly to the idea of focus and establishment of outcomes.
- * Community buy-in was a critical factor in all the Best Practice communities. Initial efforts

focused on obtaining community sentiment about sustainability and large measures of community engagement around specific strategies and goals.

Major Programmatic Emphasis

Best Practice cities tended to focus their sustainability efforts around six issues.

- 1) Energy efficiency and renewable energy
- 2) Reduction HCF footprint
- 3) Water conservation
- 4) Protection of open space and green areas
- 5) Green building
- 6) GHG emission reduction

Gap Analysis

While there are common themes and points of emphasis to every community working towards sustainability, many of the problems and solutions are different for each Best Practice community because each community faces a different environment, has different resources, and holds different values. It is for these very reasons that our approach to sustainability in College Station must be customized to our community environment, resource base, and values. It is not appropriate for us to appropriate another community's sustainability program. Our program must be unique to College Station with clearly articulated purpose and objectives.

With that premise as a backdrop and an examination of our current plans, there were several items identified in our gap analysis.

* *Energy Conservation*

- a. We lack a green energy component to our energy program.
- b. We lack clearly defined goals for our energy conservation efforts, i.e. reduction in KWH consumption over a specified period.
- c. We lack an aggressive public education component to market our efforts and expected outcomes.

* *Water Conservation*

- a. We lack a coherent water conservation program. Our development regulations run counter to our need to conserve water resources.
- b. We lack an aggressive water conservation strategy which has clearly stated goals.
- c. We lack an aggressive public education program to educate our citizens on our need to conserve water.

* *Building Codes*

Our current building codes encourage energy conservation. The codes do not encourage or promote green building standards.

* *General Observations*

One of the consistent findings from our review of Best Practice communities is the lack of a coherent policy framework on which to build our sustainability efforts. We currently are doing a number of programs with no clear set of objectives to be accomplished. Our efforts cannot be easily measured. We tend to be involved in *feel good* activities without any clear direction or purpose.

Secondly, we are failing to connect what we are doing in a meaningful and systematic way to the general population of College Station. Sustainability encompasses what businesses are doing, what major institutions like Texas A&M and College Station schools are doing, what neighboring jurisdictions and region are doing. The fact is we have not been very effective in building partnerships with the community to achieve clearly stated sustainability objectives.

Moving Forward

This White Paper has focused thus far on developing an appreciation of what we are currently doing and how we compare to other sustainability communities. The balance of this paper is designed to describe the path forward for discussion and deliberation.

Policy Formulation

The first major action required to establish direction for College Station programs and services is the establishment of clear policy parameters to guide the development of College Station's Green Program. The absence of a well thought out intentional policy will result in inefficient use of resources and opportunities.

The Green College Station policy should articulate the aspirations of community, areas of focus, and clear goals and expected outcomes.

Proposed Policy Statement

College Station is committed to being a leader in resource conservation and protection of our environment. Green College Station will express the City's commitment to achieve resource conservation and sustainability over the long-term. It is recognized there are four interdependent elements to the quality of life aspects of sustainability: (a) balancing environmental stewardship; (b) economic development; (c) social equity; and (d) financial and organizational viability. College Station City Manager is directed to develop the Green College Station Action Plan for Council approval to direct the City's efforts to implement its green strategies.

Proposed Plan of Action

The Proposed Green College Station Action Plan will focus our efforts into a comprehensive plan of action with real and measurable results. The plan will address four areas.

Energy conservation and renewable energy sources. We will include renewable green energy in a portion of our purchased power for resale to College Station Utility customers while reducing the overall energy consumption. We will pursue these strategies through public education, ordinance revisions, incentive programs, and alternative rate strategies.

Water conservation. We will reduce our overall water consumption and develop mechanisms to reuse water in the community. We will implement our strategies through aggressive public education programs, changes to our development ordinances, and instituting a conservation rate structure.

Solid and hazardous waste reduction. We will reduce the overall volume of waste generated in the community while developing environmentally sound and economically feasible means to dispose of waste. We will implement these strategies through aggressive public education programs and investing in alternative waste reduction programs.

Land use/green and open space/development codes. We will develop specific strategies to promote efficient use of our land while protecting our natural resources. We will promote open and green space as a prominent component of our community character. We will achieve these strategies by focusing our comprehensive plan update around these concepts and amend our development ordinances to achieve the desired results.

The Plan of Action will include measurable outcomes and reported to Council on an annual basis.

Municipal Leadership Program. It is proposed to place the City of College Station in major leadership role through setting of policies and by example to promote Green principles throughout the community. There are several initiatives (strategies) which can be undertaken as a part of the Municipal Leadership program.

- * Commit to reducing energy consumption in all City facilities by a specific percentage over the next 5-7 years. This will require an aggressive effort to achieve this ambitious program. It will require a highly focused and concentrated effort.
- * Commit to LEED standards for all newly constructed and major remodel projects in

municipal facilities. This will require a change in our basic design standards for new or remodeled facilities.

- * Commit to migrating the city fleet to use hybrid vehicles. The use of hybrid vehicles will be employed where appropriate and consistent with the proposed use.
- * Commit to a reduction in water usage in city facilities. This should be a comprehensive program which includes irrigation practices, water efficient plumbing fixtures, and reuse of treated effluent.

Citizen Engagement

Engaging College Station citizens in a meaningful discussions of options, actions and tools to accomplish the overall policy objective to become a leader in resource conservation and protection is vital. While the City government can play a key leadership role, our citizens must embrace our green strategies and support our comprehensive efforts.

Council should consider implementing a citizen engagement strategy that will provide our citizens with the opportunity to provide input, suggestions, and assist us in crafting workable strategies. Citizen Engagement tools which lend themselves to citizen connection to our Green strategies:

- * Citizen Congress focused on green issues
- * Community wide engagement sessions (2-3)
- * Green College Station Advisory group

Conclusions

The White Paper has attempted to set forth broad policy parameters to begin crafting an integrated green policy for College Station. The paper is a beginning point. A Plan of Action must be built which implements Council policy direction. We will need to engage our citizens in a meaningful discussion to begin building broad based support and education on the importance of resource conservation and protection.

Finally, it is imperative that we focus our efforts and develop specific measures to gauge our success. We must be strategic in our efforts to produce long term quality results.

Appendix 1

City of College Station Environmental Programs

Summary of current resource-efficient programs, prepared for the Green College Station Discussion Group: September 2007

This document was prepared to provide a "baseline" detailing current efforts of the City of College Station regarding energy efficiency, water conservation and pollution prevention.

ENERGY CONSERVATION

Good Cents New Home Rebate Program

This energy efficiency program for new homes is a flexible, performance-based program that allows the future homeowner and homebuilder various combinations of energy efficient, thermal and mechanical components to meet the Good Cents heat gain and air infiltration requirements. Good Cents Homes are designed and built with construction techniques that exceed the current International Energy Codes. New homes that meet all heat gain, insulation and blower door inspections are eligible for rebates of \$400 to \$800.

Energy Back II Rebate Program

The Energy Back II Rebate program offers savings to ratepayers who upgrade to a more efficient air conditioning system. Higher-efficiency A/C units not only save the ratepayer money, they also help to reduce the peak demand placed on the City's electrical system during the summer months.

Energy Back II Rebate HVAC replacements must be sized no more than 12,000 BTU's (1 Ton) for every 500 square feet of conditioned space. Minimum Seasonal Energy Efficiency Ratio (SEER) value is 14 SEER. Rebate amounts vary from \$200 to \$600 based on SEER rating for the unit.

In FY 2006, College Station Utilities provided 179 rebates for certified Good Cents homes and high efficiency air conditioner replacements, resulting in an annual savings of 456 kW.

Energy Audits

Energy personnel provide free on-site energy surveys to help commercial and

residential customers evaluate and pinpoint energy conservation measures specific to each customer's location and suggest practices to reduce utility costs. In FY 2006 College Station Utilities provided 158 on-site energy audits, resulting in an estimated \$191 annual savings per customer.

Automated Light Systems for Athletic Fields

Athletic light systems for the Parks and Recreation Department's softball, baseball and soccer are equipped with computer-controlled systems to reduce the amount of time that lights are left on after games have finished play.

Adoption of the International Energy Conservation Code (IECC)

The City Council recently adopted the 2006 edition of the International Energy Conservation Code (IECC). The IECC requires energy conservation through efficiency in the building envelope design, mechanical systems, lighting systems and the use of energy efficient materials and techniques in new construction. *Note: The Good Cents New Home Program requires performance above and beyond the requirements of the IECC.*

HAZARDOUS WASTE MANAGEMENT

Waste Oil Recycling

The City of College Station maintains two drop-off sites for people to safely dispose of used motor oil and oil filters, one at Public Works and one at the Rock Prairie Road Landfill. The Brazos Valley Solid Waste Management Agency (BVSWM) has maintained a used oil recycling center at the Rock Prairie Road Landfill since 1997. This center was a result of grant funding from the Texas Commission on Environmental Quality as part of their used oil program. Used motor oil and oil filters are also accepted at BVSWM's twice-yearly Household Hazardous Waste Collections.

Approximately 1,500 gallons of used oil and over 1,000 used oil filters are recycled through this program each year. The oil is eventually used as a burner fuel under the regulations of the Clean Air Act. The filters are recycled according to Texas Commission on Environmental Quality (TCEQ) and Federal regulations.

Household Hazardous Waste Collection

The Brazos Valley Solid Waste Management Agency (BVSWM) in partnership with the City of College Station, City of Bryan and Texas Commission on Environmental Quality sponsors a twice yearly Household Hazardous Waste Collection for the Brazos Valley, where residents can bring hazardous items as well as computers and mercury thermometers for recycling and safe disposal. Contaminated fuels, oils, antifreeze, chemicals, and solvents are collected for disposal. BVSWM contracts with a contractor to perform these services and shall attempt, whenever possible and practicable, to recycle materials for energy or material recovery.

Landfill Gas Collection

Gases, largely methane, produced from the decomposition of garbage causes nuisance and hazardous conditions around a landfill. The BVSWM Rock Prairie Road Landfill has installed a landfill gas (LFG) collection and flare system to help remedy these problems.

The LFG system consists of numerous wells to extract the gas from various locations, which are then piped to a candlestick flare station where the gas is burned. Gas quality and flare operations are monitored to ensure the safety of BVSWM personnel, surrounding citizens and environment. The current goal of the LFG collection and flare system is to control this natural occurrence and eliminate the migration of LFG offsite into surrounding air and water.

Future considerations for BVSWM's LFG collection system may include installation of an electricity generator or other suitable use. The LFG can be converted to electricity and potentially return that electricity back to the power grid or use as a fuel for other uses.

Tires

Although TCEQ regulations prohibit landfill disposal of tires, the Rock Prairie Road Landfill receives approximately 8,000 used tires per year. These tires are usually commingled with customers' loads and pulled out of the waste. Customers are then charged for tires disposed at prices ranging from \$3 to \$20 based on size. BVSWM employees remove the tires from the working face and stack them in an enclosed trailer. A trailer holds approximately 1,000 used tires. The cost of a pickup for a full trailer, return of empty trailer, and processing of used tires is \$1200.00.

The used tires are then taken to a processing plant where 99% of the material is recycled by the vendor. Whole tires are shredded to ½" to 2" and used as a fuel source for cement kilns, electric utilities, and pulp and paper mills.

NATURAL AREAS AND OPEN SPACE PRESERVATION

Natural Areas

College Station's park system includes 51 parks totaling over 1,300 acres of land. Most of these parks include some natural areas. The park site planning process deliberately avoids the destruction of existing natural areas as much as possible to maintain the native habitat. These park areas help reduce the overall heat effect, reduce runoff and help with the absorption of the effects of emissions. In addition, the Greenways Master Plan identifies designated areas for future conservation.

Native Plantings

The Department utilizes native and adaptive plantings as much as possible.

Tree Plantings

The Department plants hundreds of trees annually in conjunction with new park developments; public improvement projects and volunteer efforts such as the annual "Aggie Replant".

Interpretation

The Department has a nice interpretive program along the Wolf Pen Creek Trail system. This provides helpful information about local plant and animal species in addition to information about wetlands and

greenways. This educational component is a small step in encouraging responsible behavior regarding the creeks, parks and greenways within the community.

SOLID WASTE RECYCLING

Residential Curbside Collection

The City of College Station adopted citywide residential curbside recycling in 1991, for the purpose of diverting recyclable materials from landfill disposal. In FY 2006, the curbside recycling program diverted 1,155 tons of recyclables from the landfill, an average of 15 pounds per household. The following items are collected through the weekly residential curbside collection program:

GLASS: clear and brown glass bottles and jars

METAL: steel and aluminum cans; cans

PLASTIC: All “#1” coded plastic soda, liquor, or drink bottles and “#2” coded plastic milk, juice, and water jugs

PAPER: newspapers and magazines (not including phone books)

OTHER: Automotive batteries

City Office Recycling

All City offices are supplied with recycling containers to collect and store their recyclable materials for collection. The recyclable materials are collected by the City and then transported to a facility to be recycled. The City provides a weekly collection service for the following materials:

- Paper: White paper, colored & mixed paper, corrugated cardboard, and telephone books
- Printer Cartridges
- Fluorescent Light Bulbs
- Rechargeable Batteries
- Styrofoam Peanuts

Recycling Drop-Off

The Public Works Office lobby has a recycling drop-off area for various electronic media and other items not picked up through the curbside program. The recyclable materials are collected by the City and then transported to a facility to be recycled.

- phone books;
- cell phones and pagers;
- rechargeable batteries;

- ink jet cartridges;
- compact fluorescent bulbs
- digital cameras and accessories;
- computer media (CD’s, DVD’s, floppy discs);
- audio and video tapes;
- handheld games and “palm pilot” type handheld personal digital assistants (PDA’s)

White Goods Recycling

“White Goods” are bulky appliances such as refrigerators, freezers, air conditioners, and washer/dryer units. The White Goods Recycling Program was started in 1995 to divert large appliances and remove Freon-containing appliances from the landfill. A BVSWM employee, certified in Freon recovery, extracts Freon when necessary from A/C units, refrigerators, and compressors and the unit is recycled as scrap metal.

E-Waste Collection

Since 2003, BVSWM has collected computers and computer components for recycling in conjunction with the twice-yearly Household Hazardous Waste. The computer recycler transports these back to their facility where the computers are either recycled or refurbished and donated to non-profit agencies and low-income individuals. This program diverts approximately twelve tons of e-waste per year that otherwise would have been landfilled.

Surplus Property Program

The Purchasing Division operates a surplus property program for the City of College Station. When departments have equipment and other items that are no longer needed for their operations, the items are transferred into the Surplus Property Process. The property is then made available to all departments via transfer for use in their operations. If the property is not transferred out of surplus to another department, it is offered to other governmental agencies at fair market value. Unsold surplus is disposed of through public auction.

WATER RESOURCES

Irrigation Systems in City Parks and Facilities

Irrigation systems are used on athletic turf, around key buildings and in small focal

areas. Drip irrigation is used for trees. The majority of the parks areas are not irrigated and the predominant turf is common Bermuda grass which tends to do very well in this climate without irrigation systems.

Water Reuse

The Water Services Department is working on plans to implement a water reuse system to irrigate athletic fields in City parks using recycled water from the Carter's Creek Wastewater Treatment Plant (CCWWTP). Water reuse will reduce demands on potable water resources and provide a drought-resistant water supply for non-potable water uses, such as irrigation of athletic fields.

When the water reuse system is fully built out to serve Veterans Park and Athletic Complex, Central Park and the City Center area, the reuse system can save over one million gallons of potable water per day. As more facilities throughout the City are converted to reuse water for irrigation, demand on limited potable water supplies will be further reduced.

UDO Landscape Irrigation Provision

Water conservation is encouraged by Section 7.5 C in the Unified Development Ordinance (UDO). Section 7.5 C states, "A 10 percent point credit will be awarded where the irrigation system employed is a recognized water-conserving system."

Learning to be WaterWise Water Conservation Curriculum

The Water Services Department sponsors this award-winning program in the fifth grade at Cypress Grove and Oakwood Intermediate Schools. For the 2006 / 2007 school year 694 fifth grade students and their families participated in the program. 62% rated the Water Wise Program as good or great and 73% reported they changed the way they use water. By installing the water-efficient fixtures in their homes and changing their water use habits, the students and their families will save a combined 6,772,876 gallons of water and wastewater, 18,562 therms of gas, and 398,629 kWh this year alone.

REFERENCES

City of College Station Municipal Recycling Guide
City of College Station Resource Efficient Procurement and Utilization Policy
Good Cents Rebate Application
Energy Back II Rebate Application
City of College Station Code of Ordinances
Learning to be Water Wise Program
Summary Report, August 2007
Performance Measures reports for various City departments and programs
City of College Station Water Conservation Plan, October 2006
City of College Station Veterans Park Irrigation Update, Camp Dresser & McKee, August 2006

ABBREVIATIONS

BTU – British Thermal Unit
BVSWMMA – Brazos Valley Solid Waste Management Agency
CCWWTP – Carter’s Creek Wastewater Treatment Plant
HDPE – High Density Polyethylene (plastic)
HHW – Household Hazardous Waste
HVAC – Heating, Ventilating, and Air Conditioning
IECC – International Energy Conservation Code
LCWWTP – Lick Creek Wastewater Treatment Plant
LFG – Landfill gas
PET – Polyethylene Terephthalate (plastic)
SEER – Seasonal Energy Efficiency Ratio
TCEQ – Texas Commission on Environmental Quality